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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,251	12/31/2003	Young Hun Seo	20059/PIA31199	8846
34431	7590	05/12/2005	EXAMINER	
HANLEY, FLIGHT & ZIMMERMAN, LLC			PERT, EVAN T	
20 N. WACKER DRIVE			ART UNIT	
SUITE 4220			PAPER NUMBER	
CHICAGO, IL 60606			2826	

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,251

Applicant(s)

SEO, YOUNG HUN

Examiner

Evan Pert

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 5 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. Grammatical informality is noted, such as “serves to a protection film” in claim 5 (meaning –serves as a protection film--), or “...layer 3...are removed...by a various processes...” of [0009]. None of the informalities introduce difficulty in understanding what is meant; yet a US patent should preferably be published in proper English.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Noble (US 6,319,333 B1).

Regarding claim 1, the Noble reference discloses: a method of fabricating a silicon on insulator substrate for use in a semiconductor structure (col. 2, lines 29-37), the method comprising: forming a plurality of trenches on a substrate (i.e. “second set of trenches” IN “Summary of the Invention”), forming an insulation layer on the trenches (i.e. nitride is formed by CVD on the trenches per col. 5, lines 15-18); removing a portion of the insulation layer formed on the trenches to partially expose the substrate (col. 5,

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lines 18-25); and forming a silicon on insulator film in the substrate via the exposed portions of the substrate (col. 5, lines 25-26 w/ col. 6, lines 8-11).

Regarding claim 2, the Noble reference discloses a method of fabricating a silicon on insulator substrate for use in a semiconductor structure, the method comprising: forming a plurality of trenches on a substrate (col. 4, lines 63-67), each of the trenches having an inner surface divided into a peripheral surface and a bottom region (see Fig. 11); forming an insulation layer on the inner surface of each of the trenches and top of the substrate (i.e. 36 before RIE etch); removing a portion of the insulation layer formed on the bottom region of each of the trenches to partially expose the substrate (see after RIE as in Fig. 11), wherein a portion of the insulation layer formed on the peripheral surfaces of each of the trenches remains (i.e. 36 remains); forming a silicon on insulator film in the substrate via the exposed portions of the substrate (col. 2, lines 53-55); and filling the trenches with trench filling material (col. 5, lines 65-67) to form trench insulation films (seen as "42" in Fig. 14).

Regarding claim 4, the Noble reference discloses that an oxidation process performs the silicon on insulator film forming (col. 5, lines 45-62).

Regarding claim 5, the Noble reference discloses that the portion of the insulation layer formed on the peripheral surface of each of the trenches serves as a protection film for protecting an active region of the substrate during the oxidation process (col. 5, lines 22-26).

Allowable Subject Matter

5. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose applicant's method of forming a silicon on insulator structure *characterized by* anodization of substrate through a bottom portion of trenches wherein a portion of insulation layer remains on peripheral inner surfaces of the trenches.

Note that the scope of "on the trenches" in claim 1 does not reasonably include "oxide 7" in Fig. 1b of US 6,506,658 as being "on trenches 6" because the "oxide 7" is on the "substrate 8" *between* trenches, not "*on* trenches." Being "on a trench" would necessarily require being inside the trench perimeter as seen from above, and nothing can be "on a trench" until the trench is formed; otherwise something would be "on a trench *region*," not "on a trench."

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The patents to Gilton, Frei et al., Mattox et al., Spratt et al., and Lynch et al., cited on Form-892 included with this communication, do not anticipate the pending claims, yet are related, and are helpful in understanding the background of state-of-the-art of applicant's invention at the time of filing.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan Pert whose telephone number is 571-272-1969.

The examiner can normally be reached on M-F (7:30AM-3:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ETP
May 9, 2005


EVAN PERT
PRIMARY EXAMINER